pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Southwest Regional Office
CLEAN WATER PROGRAM

NPDES PERMIT FACT SHEET
INDIVIDUAL SEWAGE

Application Type	**Renewal**	Application No.	**PA0091791**
Facility Type	**Non-Municipal**	APS ID	**1012563**
Major / Minor	**Minor**	Authorization ID	**1307532**

Applicant and Facility Information

Applicant Name	**DRBITTNER, LLC**	Facility Name	**Countryside Estates MHP STP**
Applicant Address	339 Breakiron Road	Facility Address	320 Breakneck Road
	Connellsville, PA 15425		Connellsville, PA 15425-9701
Applicant Contact	Donald Bittner	Facility Contact	Donald Bittner
Applicant Phone	(724) 502-0268	Facility Phone	(724) 502-0268
Client ID	329422	Site ID	253521
Ch 94 Load Status	Not Overloaded	Municipality	Bullskin Township
Connection Status	No Limitations	County	Fayette
Date Application Received	March 3, 2020	EPA Waived?	Yes
Date Application Accepted	March 4, 2020	If No, Reason	

Purpose of Application: Renewal of a NPDES Permit for an existing discharge of treated sewage

Summary of Review

The subject facility is a sewage treatment plant serving a Mobile Home Park is Bullskin Township, Fayette County.

Sludge use and disposal description and location(s): The facility's sludge is transferred to other sewage treatment facilities for further processing. According to the application, 0.03 tons of sludge was removed in the previous year.

Public Participation

DEP will publish notice of the receipt of the NPDES permit application and a tentative decision to issue the individual NPDES permit in the *Pennsylvania Bulletin* in accordance with 25 Pa. Code § 92a.82. Upon publication in the *Pennsylvania Bulletin*, DEP will accept written comments from interested persons for a 30-day period (which may be extended for one additional 15-day period at DEP's discretion), which will be considered in making a final decision on the application. Any person may request or petition for a public hearing with respect to the application. A public hearing may be held if DEP determines that there is significant public interest in holding a hearing. If a hearing is held, notice of the hearing will be published in the *Pennsylvania Bulletin* at least 30 days prior to the hearing and in at least one newspaper of general circulation within the geographical area of the discharge.

Approve	Deny	Signatures	Date
✓		*Keith C. Allison* Keith C. Allison, E.I.T. / Project Manager	February 1, 2021
✓		*Christopher Kriley* Christopher Kriley, P.E. / Program Manager	February 5, 2021

Discharge, Receiving Waters and Water Supply Information

Outfall No.	001	Design Flow (MGD)	0.026
Latitude	40º 2' 22.68"	Longitude	-79º 32' 42.86"
Quad Name	Connellsville, PA	Quad Code	1809
Wastewater Description:	Sewage Effluent		
Receiving Waters	Breakneck Run (WWF)	Stream Code	38100
NHD Com ID	69917193	RMI	1.29
Drainage Area	5.31	Yield (cfs/mi^2)	0.0152
Q_{7-10} Flow (cfs)	0.0805	Q_{7-10} Basis	USGS StreamStats
Elevation (ft)	1100	Slope (ft/ft)	0.02
Watershed No.	19-D	Chapter 93 Class.	WWF
Existing Use	N/A	Existing Use Qualifier	N/A
Exceptions to Use	None	Exceptions to Criteria	None
Assessment Status	Attaining Use(s)		
Nearest Downstream Public Water Supply Intake	Westmoreland County Municipal Authority - McKeesport		
PWS Waters	Youghiogheny River	Distance from Outfall (mi)	Approx. 48

Changes Since Last Permit Issuance: Stream flow was updated using the USGS StreamStats web application. Other stream and drainage characteristics were determined by interpolation of USGS topographic maps.

Other Comments: No downstream water supply is expected to be affected by the discharge at this time with the limitations and monitoring proposed.

Treatment Facility Summary

Treatment Facility Name: Countryside Estates MHP STP

WQM Permit No.	Issuance Date
2681401	Transfer - 2/10/17
	Amendment - 10/29/01
	Original - 10/29/81

Waste Type	Degree of Treatment	Process Type	Disinfection	Avg Annual Flow (MGD)
Sewage	Secondary With Ammonia Reduction	Extended Aeration	Chlorine With Dechlorination	0.026

Hydraulic Capacity (MGD)	Organic Capacity (lbs/day)	Load Status	Biosolids Treatment	Biosolids Use/Disposal
0.026	53	Not Overloaded	Dewatering	Other WWTP

Changes Since Last Permit Issuance: None

Other Comments: Treatment, as approved by WQM permit No 2681401, consists of extended aeration, final clarification, sand filtration, and chlorination.

Compliance History

DMR Data for Outfall 001 (from December 1, 2019 to November 30, 2020)

Parameter	NOV-20	OCT-20	SEP-20	AUG-20	JUL-20	JUN-20	MAY-20	APR-20	MAR-20	FEB-20	JAN-20	DEC-19
Flow (MGD) Average Monthly	0.0006	0.0007	0.000480	0.0006	0.001	0.006	0.0008	0.001	0.0005	0.0004	0.0007	0.0006
pH (S.U.) Minimum	6.3	6.5	6.3	6.0	6.0	7.2	7.3	7.4	7.2	6.1	7.1	7.0
pH (S.U.) Maximum	6.6	6.7	6.9	6.9	6.0	7.5	7.5	7.8	7.5	7.7	7.2	7.1
DO (mg/L) Minimum	5.6	5.3	4.5	4.5	4.0	5.4	5.4	8.0	8.7	8.0	5.7	5.9
TRC (mg/L) Average Monthly	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.5	0.5	0.38	0.5	0.49
TRC (mg/L) Instantaneous Maximum	0.05	0.05	0.05	0.05	0.05	0.07	0.05	0.5	0.6	0.50	0.5	0.60
CBOD5 (mg/L) Average Monthly	2.0	2.0	2.0	3.4	2.0	2.0	3.3	2.0	2.0	2.0	2.0	3.5
CBOD5 (mg/L) Instantaneous Maximum	2.0	2.0	2.0	4.7	2.0	2.0	4.6	2.0	2.0	2.0	2.0	4.7
TSS (mg/L) Average Monthly	13.5	5.0	7.5	8.5	5.0	9.5	5.0	7.5	6.5	5.0	7.5	10.0
TSS (mg/L) Instantaneous Maximum	14.0	5.0	10.0	12.0	5.0	13.0	5.0	10.0	8.0	5.0	8.0	13.0
Fecal Coliform (CFU/100 ml) Geometric Mean	2	1	1	4	1	4	1	3	19	5	35	169
Fecal Coliform (CFU/100 ml) Instantaneous Maximum	3	1	1	7	1	14	1	4	182	14	41	298
Total Nitrogen (mg/L) Daily Maximum												19.8
Ammonia (mg/L) Average Monthly	4.3	0.2	0.1	0.9	0.4	0.1	0.8	0.5	1.9	2.3	4.3	13.1
Ammonia (mg/L) Instantaneous Maximum	6.2	0.2	0.1	1.5	0.4	0.1	1.0	0.6	3.1	2.9	6.3	14.4
Total Phosphorus (mg/L) Daily Maximum												4.8

Compliance History, Cont'd	
Summary of DMRs:	The above DMR data shows compliance with effluent limitations for the past year.
Summary of Inspections:	The facility has been inspected periodically over the past permit term. The most recent inspection by the Department on December 27, 2018 noted ongoing effluent violations at the time.
Other Comments:	A WMS query in eFACTS found no open violations for DRBITTNER, LLC in eFACTS.

Existing Effluent Limitations and Monitoring Requirements

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.026	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.5	XXX	1.6	1/day	Grab
CBOD5	XXX	XXX	XXX	25	XXX	50	2/month	Grab
TSS	XXX	XXX	XXX	30	XXX	60	2/month	Grab
Fecal Coliform (CFU/100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (CFU/100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	19.5	XXX	39.0	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	6.0	XXX	13.0	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

Development of Effluent Limitations

Outfall No. 001 **Design Flow (MGD)** 0.026
Latitude 40º 7' 1.00" **Longitude** -79º 33' 58.00"
Wastewater Description: Sewage Effluent

Technology-Based Limitations

The following technology-based limitations apply, subject to water quality analysis and BPJ where applicable:

Pollutant	Limit (mg/l)	SBC	Federal Regulation	State Regulation
$CBOD_5$	25	Average Monthly	133.102(a)(4)(i)	92a.47(a)(1)
	40	Average Weekly	133.102(a)(4)(ii)	92a.47(a)(2)
Total Suspended Solids	30	Average Monthly	133.102(b)(1)	92a.47(a)(1)
	45	Average Weekly	133.102(b)(2)	92a.47(a)(2)
pH	6.0 – 9.0 S.U.	Min – Max	133.102(c)	95.2(1)
Fecal Coliform (5/1 – 9/30)	200 / 100 ml	Geo Mean	-	92a.47(a)(4)
Fecal Coliform (5/1 – 9/30)	1,000 / 100 ml	IMAX	-	92a.47(a)(4)
Fecal Coliform (10/1 – 4/30)	2,000 / 100 ml	Geo Mean	-	92a.47(a)(5)
Fecal Coliform (10/1 – 4/30)	10,000 / 100 ml	IMAX	-	92a.47(a)(5)
Total Residual Chlorine	0.5	Average Monthly	-	92a.48(b)(2)

Comments: The above limitations are applicable and included in the existing permit and will remain except a more stringent water quality-based TRC limit is necessary as discussed below.

Water Quality-Based Limitations

DO, CBOD5 and NH3-N

The discharge has existing water quality-based limits for ammonia-nitrogen and a BPJ-based limitation for Dissolved Oxygen.

The Department uses the WQM7.0 model to evaluate point source discharges of dissolved oxygen (DO), carbonaceous BOD ($CBOD_5$), and ammonia-nitrogen (NH_3-N) into free-flowing streams and rivers. To accomplish this, the model simulates two basic processes: the mixing and degradation of NH_3-N in the stream and the mixing and consumption of DO in the stream due to the degradation of $CBOD_5$ and NH_3-N. WQM7.0 modeling was performed and found that the Secondary limits for $CBOD_5$ and the existing BPJ limit for DO are adequate but the ammonia limitations should be reduced by a small margin from 6.5 mg/L to 6.49 mg/L as a monthly average. As in previous approvals, the winter (November through April) ammonia limitation was determined by a factor of three times the summer (May through October) limit.

Total Residual Chlorine

The Department uses a modeling spreadsheet to determine appropriate limitations for TRC based on available instream criteria, dilution, and other factors. The attached modeling shows that a new water quality-based limit of 0.30 mg/L is necessary to protect the receiving stream. The new limit is primarily the result of a different stream flow used compared to the previous review of the discharge. The existing DMR data as shown on page 4 of this Fact Sheet indicates that the limit is achievable.

Toxics Management

No further “Reasonable Potential Analysis” was conducted to determine additional toxic parameters for this minor treatment facility with no industrial contributors.

Nutrient Requirements

Annual nutrient monitoring was included in the existing permit. The Total Nitrogen was found to average 22 mg/L and the Total Phosphorus averaged 4.8 mg/L over the past five years. The existing annual monitoring for Total Nitrogen and Total Phosphorus is adequate and will continue.

Best Professional Judgment (BPJ) Limitations

Comments: No other BPJ limitations are necessary beyond the water quality and technology-based limitations noted above other than the existing BPJ limit for DO.

Anti-Backsliding

No limitations have been made less stringent consistent with the anti-backsliding requirements of the Clean Water Act and 40 CFR 122.44(l).

Proposed Effluent Limitations and Monitoring Requirements

The limitations and monitoring requirements specified below are proposed for the draft permit, and reflect the most stringent limitations amongst technology, water quality and BPJ. Instantaneous Maximum (IMAX) limits are determined using multipliers of 2 (conventional pollutants) or 2.5 (toxic pollutants). Sample frequencies and types are derived from the "NPDES Permit Writer's Manual" (362-0400-001), SOPs and/or BPJ.

Outfall 001, Effective Period: Permit Effective Date through Permit Expiration Date.

Parameter	Effluent Limitations						Monitoring Requirements	
	Mass Units (lbs/day) (1)		Concentrations (mg/L)				Minimum (2) Measurement Frequency	Required Sample Type
	Average Monthly	Average Weekly	Minimum	Average Monthly	Maximum	Instant. Maximum		
Flow (MGD)	0.026	XXX	XXX	XXX	XXX	XXX	2/month	Measured
pH (S.U.)	XXX	XXX	6.0	XXX	9.0	XXX	1/day	Grab
DO	XXX	XXX	4.0	XXX	XXX	XXX	1/day	Grab
TRC	XXX	XXX	XXX	0.3	XXX	0.98	1/day	Grab
CBOD5	XXX	XXX	XXX	25.0	XXX	50.0	2/month	Grab
TSS	XXX	XXX	XXX	30.0	XXX	60.0	2/month	Grab
Fecal Coliform (No./100 ml) Oct 1 - Apr 30	XXX	XXX	XXX	2000 Geo Mean	XXX	10000	2/month	Grab
Fecal Coliform (No./100 ml) May 1 - Sep 30	XXX	XXX	XXX	200 Geo Mean	XXX	1000	2/month	Grab
Total Nitrogen	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab
Ammonia Nov 1 - Apr 30	XXX	XXX	XXX	19.47	XXX	38.94	2/month	Grab
Ammonia May 1 - Oct 31	XXX	XXX	XXX	6.49	XXX	12.98	2/month	Grab
Total Phosphorus	XXX	XXX	XXX	XXX	Report Daily Max	XXX	1/year	Grab

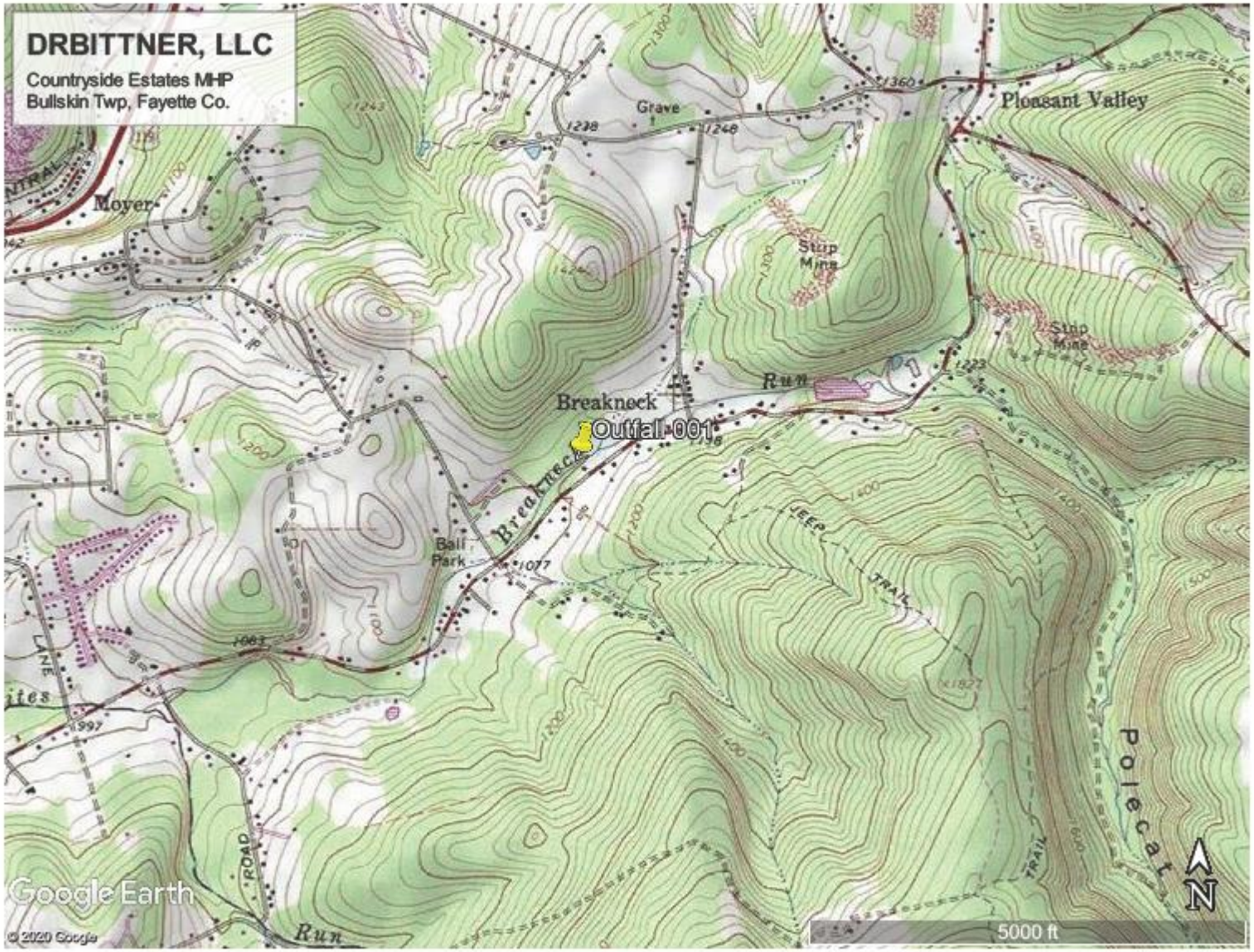
Compliance Sampling Location: Outfall 001

Other Comments: The above limitations and monitoring are unchanged from the existing permit except for a modest reduction in the Ammonia-nitrogen limits and a more stringent TRC limit as mentioned above.

Tools and References Used to Develop Permit	
☒	WQM for Windows Model (see Attachment **B**)
☐	PENTOXSD for Windows Model (see Attachment)
☒	TRC Model Spreadsheet (see Attachment **C**)
☐	Temperature Model Spreadsheet (see Attachment)
☐	Toxics Screening Analysis Spreadsheet (see Attachment)
☐	Water Quality Toxics Management Strategy, 361-0100-003, 4/06.
☒	Technical Guidance for the Development and Specification of Effluent Limitations, 362-0400-001, 10/97.
☐	Policy for Permitting Surface Water Diversions, 362-2000-003, 3/98.
☒	Policy for Conducting Technical Reviews of Minor NPDES Renewal Applications, 362-2000-008, 11/96.
☐	Technology-Based Control Requirements for Water Treatment Plant Wastes, 362-2183-003, 10/97.
☐	Technical Guidance for Development of NPDES Permit Requirements Steam Electric Industry, 362-2183-004, 12/97.
☐	Pennsylvania CSO Policy, 385-2000-011, 9/08.
☐	Water Quality Antidegradation Implementation Guidance, 391-0300-002, 11/03.
☐	Implementation Guidance Evaluation & Process Thermal Discharge (316(a)) Federal Water Pollution Act, 391-2000-002, 4/97.
☒	Determining Water Quality-Based Effluent Limits, 391-2000-003, 12/97.
☒	Implementation Guidance Design Conditions, 391-2000-006, 9/97.
☒	Technical Reference Guide (TRG) WQM 7.0 for Windows, Wasteload Allocation Program for Dissolved Oxygen and Ammonia Nitrogen, Version 1.0, 391-2000-007, 6/2004.
☐	Interim Method for the Sampling and Analysis of Osmotic Pressure on Streams, Brines, and Industrial Discharges, 391-2000-008, 10/1997.
☐	Implementation Guidance for Section 95.6 Management of Point Source Phosphorus Discharges to Lakes, Ponds, and Impoundments, 391-2000-010, 3/99.
☐	Technical Reference Guide (TRG) PENTOXSD for Windows, PA Single Discharge Wasteload Allocation Program for Toxics, Version 2.0, 391-2000-011, 5/2004.
☒	Implementation Guidance for Section 93.7 Ammonia Criteria, 391-2000-013, 11/97.
☐	Policy and Procedure for Evaluating Wastewater Discharges to Intermittent and Ephemeral Streams, Drainage Channels and Swales, and Storm Sewers, 391-2000-014, 4/2008.
☒	Implementation Guidance Total Residual Chlorine (TRC) Regulation, 391-2000-015, 11/1994.
☐	Implementation Guidance for Temperature Criteria, 391-2000-017, 4/09.
☐	Implementation Guidance for Section 95.9 Phosphorus Discharges to Free Flowing Streams, 391-2000-018, 10/97.
☐	Implementation Guidance for Application of Section 93.5(e) for Potable Water Supply Protection Total Dissolved Solids, Nitrite-Nitrate, Non-Priority Pollutant Phenolics and Fluorides, 391-2000-019, 10/97.
☐	Field Data Collection and Evaluation Protocol for Determining Stream and Point Source Discharge Design Hardness, 391-2000-021, 3/99.
☐	Implementation Guidance for the Determination and Use of Background/Ambient Water Quality in the Determination of Wasteload Allocations and NPDES Effluent Limitations for Toxic Substances, 391-2000-022, 3/1999.
☒	Design Stream Flows, 391-2000-023, 9/98.
☐	Field Data Collection and Evaluation Protocol for Deriving Daily and Hourly Discharge Coefficients of Variation (CV) and Other Discharge Characteristics, 391-2000-024, 10/98.
☐	Evaluations of Phosphorus Discharges to Lakes, Ponds and Impoundments, 391-3200-013, 6/97.
☐	Pennsylvania's Chesapeake Bay Tributary Strategy Implementation Plan for NPDES Permitting, 4/07.
☒	SOP: Establishing Effluent Limitations for Individual Sewage Permits, rev. 8/23/13
☐	Other:

Attachments:

A. Discharge Location Map
B. WQM7.0 Modeling
C. TRC Spreadsheet Model


DRBITTNER, LLC
Countryside Estates MHP
Bullskin Twp, Fayette Co.
Outfall 001
Breakneck
Run
Pleasant Valley
Moyer
Strip Mine
Ball Park
JEEP TRAIL
Polecat
ROAD
Google Earth
© 2020 Google
5000 ft
N

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	38100	BREAKNECK RUN	**1.290**	1200.00	5.31	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.015	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
DrBittner	PA0091791	0.0260	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	4.00	8.24	0.00	0.00
NH3-N	6.50	0.00	0.00	0.70

Input Data WQM 7.0

SWP Basin	Stream Code	Stream Name	RMI	Elevation (ft)	Drainage Area (sq mi)	Slope (ft/ft)	PWS Withdrawal (mgd)	Apply FC
19D	38100	BREAKNECK RUN	**0.290**	1100.00	6.00	0.00000	0.00	☑

Stream Data

Design Cond.	LFY (cfsm)	Trib Flow (cfs)	Stream Flow (cfs)	Rch Trav Time (days)	Rch Velocity (fps)	WD Ratio	Rch Width (ft)	Rch Depth (ft)	Tributary Temp (°C)	Tributary pH	Stream Temp (°C)	Stream pH
Q7-10	0.015	0.00	0.00	0.000	0.000	0.0	0.00	0.00	20.00	7.00	0.00	0.00
Q1-10		0.00	0.00	0.000	0.000							
Q30-10		0.00	0.00	0.000	0.000							

Discharge Data

Name	Permit Number	Existing Disc Flow (mgd)	Permitted Disc Flow (mgd)	Design Disc Flow (mgd)	Reserve Factor	Disc Temp (°C)	Disc pH
		0.0000	0.0000	0.0000	0.000	25.00	7.00

Parameter Data

Parameter Name	Disc Conc (mg/L)	Trib Conc (mg/L)	Stream Conc (mg/L)	Fate Coef (1/days)
CBOD5	25.00	2.00	0.00	1.50
Dissolved Oxygen	3.00	8.24	0.00	0.00
NH3-N	25.00	0.00	0.00	0.70

Permit No. PA0091791

WQM 7.0 Hydrodynamic Outputs

SWP Basin	Stream Code	Stream Name
19D	38100	BREAKNECK RUN

RMI	Stream Flow (cfs)	PWS With (cfs)	Net Stream Flow (cfs)	Disc Analysis Flow (cfs)	Reach Slope (ft/ft)	Depth (ft)	Width (ft)	W/D Ratio	Velocity (fps)	Reach Trav Time (days)	Analysis Temp (°C)	Analysis pH
Q7-10 Flow												
1.290	0.08	0.00	0.08	.0402	0.01894	.374	6.5	17.38	0.05	1.227	21.66	7.00
Q1-10 Flow												
1.290	0.05	0.00	0.05	.0402	0.01894	NA	NA	NA	0.04	1.432	22.19	7.00
Q30-10 Flow												
1.290	0.11	0.00	0.11	.0402	0.01894	NA	NA	NA	0.06	1.088	21.34	7.00

WQM 7.0 Modeling Specifications

Parameters	Both	Use Inputted Q1-10 and Q30-10 Flows	☑
WLA Method	EMPR	Use Inputted W/D Ratio	☐
Q1-10/Q7-10 Ratio	0.64	Use Inputted Reach Travel Times	☐
Q30-10/Q7-10 Ratio	1.36	Temperature Adjust Kr	☑
D.O. Saturation	90.00%	Use Balanced Technology	☑
D.O. Goal	5		

Permit No. PA0091791

WQM 7.0 D.O.Simulation

SWP Basin	Stream Code	Stream Name
19D	38100	BREAKNECK RUN

RMI	Total Discharge Flow (mgd)	Analysis Temperature (°C)	Analysis pH
1.290	0.026	21.663	7.000
Reach Width (ft)	**Reach Depth (ft)**	**Reach WDRatio**	**Reach Velocity (fps)**
6.498	0.374	17.383	0.050
Reach CBOD5 (mg/L)	**Reach Kc (1/days)**	**Reach NH3-N (mg/L)**	**Reach Kn (1/days)**
9.65	1.027	2.16	0.796
Reach DO (mg/L)	**Reach Kr (1/days)**	**Kr Equation**	**Reach DO Goal (mg/L)**
6.832	18.675	Owens	5
Reach Travel Time (days)			
1.227			

Subreach Results

TravTime (days)	CBOD5 (mg/L)	NH3-N (mg/L)	D.O. (mg/L)
0.123	8.42	1.96	7.62
0.245	7.35	1.78	7.82
0.368	6.42	1.61	7.95
0.491	5.60	1.46	7.99
0.614	4.89	1.32	7.99
0.736	4.26	1.20	7.99
0.859	3.72	1.09	7.99
0.982	3.25	0.99	7.99
1.105	2.84	0.90	7.99
1.227	2.47	0.81	7.99

WQM 7.0 Wasteload Allocations

SWP Basin	Stream Code	Stream Name
19D	38100	BREAKNECK RUN

NH3-N Acute Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.290	DrBittner	8.26	13	8.26	13	0	0

NH3-N Chronic Allocations

RMI	Discharge Name	Baseline Criterion (mg/L)	Baseline WLA (mg/L)	Multiple Criterion (mg/L)	Multiple WLA (mg/L)	Critical Reach	Percent Reduction
1.290	DrBittner	1.74	6.49	1.74	6.49	0	0

Dissolved Oxygen Allocations

RMI	Discharge Name	CBOD5		NH3-N		Dissolved Oxygen		Critical Reach	Percent Reduction
		Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)	Baseline (mg/L)	Multiple (mg/L)		
1.29	DrBittner	25	25	6.49	6.49	4	4	0	0

Permit No. PA0091791

WQM 7.0 Effluent Limits

SWP Basin	Stream Code	Stream Name
19D	38100	BREAKNECK RUN

RMI	Name	Permit Number	Disc Flow (mgd)	Parameter	Effl. Limit 30-day Ave. (mg/L)	Effl. Limit Maximum (mg/L)	Effl. Limit Minimum (mg/L)
1.290	DrBittner	PA0091791	0.026	CBOD5	25		
				NH3-N	6.49	12.98	
				Dissolved Oxygen			4

TRC EVALUATION

Input appropriate values in A3:A9 and D3:D9

0.0805	= Q stream (cfs)	0.5	= CV Daily
0.026	= Q discharge (MGD)	0.5	= CV Hourly
30	= no. samples	1	= AFC_Partial Mix Factor
0.3	= Chlorine Demand of Stream	1	= CFC_Partial Mix Factor
0	= Chlorine Demand of Discharge	15	= AFC_Criteria Compliance Time (min)
0.5	= BAT/BPJ Value	720	= CFC_Criteria Compliance Time (min)
0	= % Factor of Safety (FOS)		=Decay Coefficient (K)

Source	Reference	AFC Calculations	Reference	CFC Calculations
TRC	1.3.2.iii	WLA afc = 0.657	1.3.2.iii	WLA cfc = 0.633
PENTOXSD TRG	5.1a	LTAMULT afc = 0.373	5.1c	LTAMULT cfc = 0.581
PENTOXSD TRG	5.1b	LTA_afc= 0.245	5.1d	LTA_cfc = 0.368

Source		Effluent Limit Calculations	
PENTOXSD TRG	5.1f	AML MULT = 1.231	
PENTOXSD TRG	5.1g	AVG MON LIMIT (mg/l) = 0.302	AFC
		INST MAX LIMIT (mg/l) = 0.986	

WLA afc	(.019/e(-k*AFC_tc)) + [(AFC_Yc*Qs*.019/Qd*e(-k*AFC_tc))...
	...+ Xd + (AFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT afc	EXP((0.5*LN(cvh^2+1))-2.326*LN(cvh^2+1)^0.5)
LTA_afc	wla_afc*LTAMULT_afc
WLA_cfc	(.011/e(-k*CFC_tc) + [(CFC_Yc*Qs*.011/Qd*e(-k*CFC_tc))...
	...+ Xd + (CFC_Yc*Qs*Xs/Qd)]*(1-FOS/100)
LTAMULT_cfc	EXP((0.5*LN(cvd^2/no_samples+1))-2.326*LN(cvd^2/no_samples+1)^0.5)
LTA_cfc	wla_cfc*LTAMULT_cfc
AML MULT	EXP(2.326*LN((cvd^2/no_samples+1)^0.5)-0.5*LN(cvd^2/no_samples+1))
AVG MON LIMIT	MIN(BAT_BPJ,MIN(LTA_afc,LTA_cfc)*AML_MULT)
INST MAX LIMIT	1.5*((av_mon_limit/AML_MULT)/LTAMULT_afc)